

**THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION**

QUEEN’S UNIVERSITY AT KINGSTON,	§	
et al.,	§	
	§	
v.	§	CASE NO. 2:14-CV-53-JRG-RSP
	§	
SAMSUNG ELECTRONICS CO., LTD.,	§	
et al.	§	

**CLAIM CONSTRUCTION**  
**MEMORANDUM AND ORDER**

On April 2, 2015, the Court held a hearing to determine the proper construction of the disputed claim terms in United States Patents No. 7,762,665; 8,096,660; 8,322,856; and 8,672,482. After considering the arguments made by the parties at the hearing and in the parties’ claim construction briefing (Dkt. Nos. 69, 78, and 81),<sup>1</sup> the Court issues this Claim Construction Memorandum and Order.

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<sup>1</sup> Citations to documents (such as the parties’ briefs and exhibits) in this Claim Construction Memorandum and Order refer to the page numbers of the original documents rather than the page numbers assigned by the Court’s electronic docket unless otherwise indicated.

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## **BACKGROUND**

Plaintiffs bring suit alleging infringement of United States Patents No. 7,762,665 (“the ’665 Patent”), 8,096,660 (“the ’660 Patent”), 8,322,856 (“the ’856 Patent”), and 8,672,482 (“the ’482 Patent”) (collectively, the “patents-in-suit”).

Plaintiffs submit that “[t]he patents disclose inventions that automatically detect the user’s engagement with a device (attention) then modulate the device’s operation to correspond with the user’s attention.” (Dkt. No. 69 at 3.)

The patents-in-suit are all titled “Method and Apparatus for Communication Between Humans and Devices.” The ’665 Patent issued on July 27, 2010, and bears a filing date of March 21, 2003. The Abstract of the ’665 Patent states:

This invention relates to methods and apparatus for improving communications between humans and devices. The invention provides a method of modulating operation of a device, comprising: providing an attentive user interface for obtaining information about an attentive state of a user; and modulating operation of a device on the basis of the obtained information, wherein the operation that is modulated is initiated by the device. Preferably, the information about the user’s attentive state is eye contact of the user with the device that is sensed by the attentive user interface.

The ’660 Patent is a continuation of the ’665 Patent. The ’856 Patent is a continuation of a continuation of the ’660 Patent. The ’482 Patent, also, is a continuation of a continuation of the ’660 Patent. Because the patents-in-suit share a common specification and figures, this Claim Construction Memorandum and Order refers to the specification of the ’665 Patent unless otherwise indicated.

## **LEGAL PRINCIPLES**

“It is a ‘bedrock principle’ of patent law that ‘the claims of a patent define the invention to which the patentee is entitled the right to exclude.’” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Innova/Pure Water Inc. v. Safari Water Filtration Sys.*,

*Inc.*, 381 F.3d 1111, 1115 (Fed. Cir. 2004)). To determine the meaning of the claims, courts start by considering the intrinsic evidence. *See id.* at 1313; *see also C.R. Bard, Inc. v. U.S. Surgical Corp.*, 388 F.3d 858, 861 (Fed. Cir. 2004); *Bell Atl. Network Servs., Inc. v. Covad Commc'ns Group, Inc.*, 262 F.3d 1258, 1267 (Fed. Cir. 2001). The intrinsic evidence includes the claims themselves, the specification, and the prosecution history. *See Phillips*, 415 F.3d at 1314; *C.R. Bard*, 388 F.3d at 861. Courts give claim terms their ordinary and accustomed meaning as understood by one of ordinary skill in the art at the time of the invention in the context of the entire patent. *Phillips*, 415 F.3d at 1312–13; *accord Alloc, Inc. v. Int'l Trade Comm'n*, 342 F.3d 1361, 1368 (Fed. Cir. 2003).

The claims themselves provide substantial guidance in determining the meaning of particular claim terms. *Phillips*, 415 F.3d at 1314. First, a term's context in the asserted claim can be very instructive. *Id.* Other asserted or unasserted claims can aid in determining the claim's meaning because claim terms are typically used consistently throughout the patent. *Id.* Differences among the claim terms can also assist in understanding a term's meaning. *Id.* For example, when a dependent claim adds a limitation to an independent claim, it is presumed that the independent claim does not include the limitation. *Id.* at 1314–15.

“[C]laims ‘must be read in view of the specification, of which they are a part.’” *Id.* at 1315 (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc)). “[T]he specification ‘is always highly relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to the meaning of a disputed term.’” *Phillips*, 415 F.3d at 1315 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)); *accord Teleflex, Inc. v. Ficosa N. Am. Corp.*, 299 F.3d 1313, 1325 (Fed. Cir. 2002). This is true because a patentee may define his own terms, give a claim term a different meaning than

the term would otherwise possess, or disclaim or disavow the claim scope. *Phillips*, 415 F.3d at 1316. In these situations, the inventor’s lexicography governs. *Id.* The specification may also resolve the meaning of ambiguous claim terms “where the ordinary and accustomed meaning of the words used in the claims lack sufficient clarity to permit the scope of the claim to be ascertained from the words alone.” *Teleflex*, 299 F.3d at 1325. But, “[a]lthough the specification may aid the court in interpreting the meaning of disputed claim language, particular embodiments and examples appearing in the specification will not generally be read into the claims.” *Comark Commc’ns, Inc. v. Harris Corp.*, 156 F.3d 1182, 1187 (Fed. Cir. 1998) (quoting *Constant v. Advanced Micro-Devices, Inc.*, 848 F.2d 1560, 1571 (Fed. Cir. 1988)); accord *Phillips*, 415 F.3d at 1323.

The prosecution history is another tool to supply the proper context for claim construction because a patent applicant may also define a term in prosecuting the patent. *Home Diagnostics, Inc., v. Lifescan, Inc.*, 381 F.3d 1352, 1356 (Fed. Cir. 2004) (“As in the case of the specification, a patent applicant may define a term in prosecuting a patent.”). “[T]he prosecution history (or file wrapper) limits the interpretation of claims so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance.” *Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 452 (Fed. Cir. 1985).

Although extrinsic evidence can be useful, it is “less significant than the intrinsic record in determining the legally operative meaning of claim language.” *Phillips*, 415 F.3d at 1317 (citations and internal quotation marks omitted). Technical dictionaries and treatises may help a court understand the underlying technology and the manner in which one skilled in the art might use claim terms, but technical dictionaries and treatises may provide definitions that are too broad or may not be indicative of how the term is used in the patent. *Id.* at 1318. Similarly,

expert testimony may aid a court in understanding the underlying technology and determining the particular meaning of a term in the pertinent field, but an expert's conclusory, unsupported assertions as to a term's definition are entirely unhelpful to a court. *Id.* Generally, extrinsic evidence is "less reliable than the patent and its prosecution history in determining how to read claim terms." *Id.*

The Supreme Court of the United States has "read [35 U.S.C.] § 112, ¶ 2 to require that a patent's claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014). "A determination of claim indefiniteness is a legal conclusion that is drawn from the court's performance of its duty as the construer of patent claims." *Datamize, LLC v. Plumtree Software, Inc.*, 417 F.3d 1342, 1347 (Fed. Cir. 2005) (citations and internal quotation marks omitted), *abrogated on other grounds by Nautilus*, 134 S. Ct. 2120.

### **THE PARTIES' STIPULATED TERMS**

The parties have reached agreement on constructions for certain terms, as stated in their Joint Claim Construction and Prehearing Statement (Dkt. No. 61 at 1) and their Joint Claim Construction Chart (Dkt. No. 86 at App'x B). The parties' agreements are set forth in Appendix A to this Claim Construction Memorandum and Order.

### **CONSTRUCTION OF DISPUTED TERMS**

Shortly before the start of the April 2, 2015 hearing, the Court provided the parties with the Court's preliminary constructions of the disputed terms, based upon review of the parties' briefing, with the aim of focusing the parties' arguments and facilitating discussion. Those preliminary constructions are set forth within the discussion of each term, below.

At the April 2, 2015 hearing, Plaintiffs expressed that all of the Court’s preliminary constructions were acceptable. Further, both sides were agreeable to the Court’s preliminary construction for the term “operation of the device,” which is set forth below under Section E.

**A. “attention”**

<b>Plaintiffs’ Proposed Construction</b>	<b>Defendants’ Proposed Construction</b>
“engagement with or toward a subject”	Indefinite

(Dkt. No. 86, App’x B at 1.) The parties submit that this term appears in Claims 1, 4, 5, 8, 16, and 20 of the ’665 Patent, Claims 1–3 of the ’660 Patent, Claim 1 of the ’856 Patent, and Claim 1 of the ’482 Patent. (*Id.*)

Shortly before the start of the April 2, 2015 hearing, the Court provided the parties with the following preliminary construction: “Plain and Ordinary Meaning / Expressly reject Indefiniteness arguments.”

(1) The Parties’ Positions

Plaintiffs submit that the specification expressly defines “the closely related term ‘attentive state,’” and Plaintiffs explain that “the difference is that ‘attentive states’ are physical indicia of the user’s engagement, whereas ‘attention’ is the engagement itself.” (Dkt. No. 69 at 2.) Plaintiffs also argue that, during prosecution, the patentee changed “attentive state” to “attention” in several instances, but “the change merely clarified that the device would assess the user’s actual engagement with or toward the subject, rather than the raw physical indicia of that engagement alone, a minute distinction akin to the difference between detecting one’s happiness rather than just his smile.” (*Id.*)

Defendants respond that “Plaintiffs appear to contend that the recited ‘attention’ calls [for] determining the actual state of mind of the user, which is without objective boundaries and

unquestionably beyond the disclosure of the Patents-in-Suit.” (Dkt. No. 78 at 2.) Defendants argue that whereas “observable indicia of user’s attention” and “attentive state” are “reasonably understandable to one of ordinary skill,” “a user’s actual ‘attention’” “is beyond what can be observed, measured, or calculated” such that “Plaintiffs claimed a device that can detect the user’s actual state of mind.” (*Id.* at 4–5.) Defendants emphasize that during prosecution of the ’665 Patent, the patentee amended the claims so as to replace “attentive state” with “attention.” (*Id.* at 5–6.)

Plaintiffs reply that “sensing ‘attention’—whether by humans or computers—always refers to an approximation based on observable indicia as perceived by a third-party observer.” (Dkt. No. 81 at 3–4.) “In ordinary parlance, the answer to the question, ‘Is that person paying attention?’ is an estimation based on observable indicia as perceived by an outside observer. The patents give computers the inherently human capability to assess or predict a user’s actual ‘attention’ based on such observable indicia.” (*Id.* at 5.)

At the April 2, 2015 hearing, the parties substantially agreed that the term “attention” refers to a state of mind. The parties disputed whether the claim scope is nonetheless reasonably certain.

## (2) Analysis

Claims 1 and 4 of the ’665 Patent, for example, recite (emphasis added):

1. A method of modulating operation of a device, comprising:
  - disposing a hardware sensor in or on the device for sensing *attention* of a user specifically toward the device;
  - processing a signal from the hardware sensor and outputting to the device a measure or index of the user’s *attention* toward the device; and
  - modulating operation of the device on the basis of the measure or index of the user’s *attention* toward the device;
- wherein the operation that is modulated is initiated by the device and provides a notification and/or information and/or communication to the user based on the user’s *attention* toward the device.



\* \* \*

4. The method of claim 1, wherein *sensing attention* comprises sensing one or more indices selected from the group consisting of eye contact, eye movement, eye position, eye gaze direction, voice, body presence, body orientation, head and/or face orientation, *user activity*, and brain activity/arousal.

The specification expressly defines “attentive state,” as well as “attentive user interface”:

As used herein, the term “attentive state” is intended to mean a measure or index of a user’s *engagement with or attention toward a subject*. Examples of such indices are eye contact, eye movement, eye position, eye gaze direction, voice, body presence, body orientation, head and/or face orientation, activity, and brain activity/arousal.

’665 Patent at 6:3–8 (emphasis added).

As used herein, the term “attentive user interface” is intended to mean any hardware and/or software that *senses, receives, obtains, and negotiates a user’s attention by sensing one or more indices of a user’s attentive state* (e.g., eye contact, eye movement, eye position, eye gaze direction, voice, body presence, body orientation, head and/or face orientation, activity, brain activity/arousal), with appropriate hardware and associated algorithms and/or software for interfacing the attentive user interface with a device or a network of devices. An attentive user interface comprises portions for sensing user attentive state and for processing and interfacing/relaying information about the user’s attentive state to a device. Such portions can be housed as a unit or as multiple units. Interfacing an attentive user interface with a device comprises providing an output from the attentive user interface to the device, which controls operation of the device. An attentive user interface of the invention can perform one or more tasks, such as, but not limited to, making decisions about user presence/absence, *making decisions about the state of user attention*, prioritizing communications in relation to current priorities in user attention as sensed by the attentive user interface, modulating channels and modes of delivery of notifications and/or information and/or communications to the user, modulating presentation of visual or auditory information, and *communicating information (e.g., indices) about user attention to other subjects*.

*Id.* at 5:44–6:2 (emphasis added).

The specification also refers to detecting user “activity.” *See id.* at 9:42–45 (“[A]n attentive user interface might progressively signal for the user’s attention. Initially this may happen through a channel that is peripheral to the user’s current activity.”); *see also id.* at 11:25–

27 (“A device remains in the periphery of user activity until the user has acknowledged the device’s request for attention.”); *id.* at 16:45–46 (“Alex enters his living room, which senses his presence . . . .”); *id.* at 16:56–58 (“As he enters the kitchen, his interruption levels are adjusted appropriate to his interactions with devices in the kitchen.”)

During prosecution, the patentee amended claims so as to replace “attentive state” with “attention.” (*See* Dkt. No. 78, Ex. 2, Dec. 11, 2009 Reply to Office Action (’665 Patent), at 2–6 (QUEENS-SAMSUNG-0006678-82) (pp. 3–7 of 35 of Ex. 2)).<sup>2</sup> In the accompanying remarks, the patentee stated that the claims were “amended for greater clarity.” (*Id.* at 7.)

As for extrinsic evidence, Plaintiffs submit the opinions of their expert:

A user’s actual attention is a first-person perspective, and with current technology can only explicitly be conveyed by a user. That sort of conscious and explicit communication is what results in “user-initiated” device interaction. The patents in suit are not focused on such user-initiated device interaction, but rather on device-initiated interaction based on proxies of attention as sensed by the device.

. . . [S]ensing attention, even by humans of other human’s attention, is necessarily an approximation based on observable indicia from an outsider’s perspective.

(Dkt. No. 81, Ex. A, Feb. 4, 2015 Balakrishnan Decl. at ¶¶ 23–24.)

The opinions of Plaintiffs’ expert are persuasive and credible, particularly in light of the above-discussed intrinsic evidence, as to the term “attention” being objectively measurable and having a “reasonabl[y] certain[]” scope in the claims of the patents-in-suit. *Nautilus*, 134 S. Ct. 2120 at 2129. Of particular note, the claims themselves recite sensing “attention” through objectively measureable indicia. In other words, what ultimately matters in the claims is the state

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<sup>2</sup> Plaintiffs have also cited the “Apr. 16, 2009 Reply to Final Office Action (’665 File History),” “Sept. 23, 2013 Reply to Office Action (’482 File History),” and “Interview Summary, Apr. 14, 2010 (’665 File History),” but Plaintiffs have not attached these documents to their briefing or otherwise submitted these documents to the Court. (Dkt. No. 69 at 2.) Plaintiffs also have cited various extrinsic dictionaries throughout their brief, but Plaintiffs have not provided those dictionaries, or even excerpts thereof, to the Court. (*Id.* at 4, 8, & 10.)

of mind perceived by a device, not the user’s actual state of mind. The specification is consistent with such a reading. *See* ’665 Patent at 6:3–8 (quoted above).

The Court therefore hereby expressly rejects Defendants’ indefiniteness argument. No further construction is necessary. *See U.S. Surgical Corp. v. Ethicon, Inc.*, 103 F.3d 1554, 1568 (Fed. Cir. 1997) (“Claim construction is a matter of resolution of disputed meanings and technical scope, to clarify and when necessary to explain what the patentee covered by the claims, for use in the determination of infringement. It is not an obligatory exercise in redundancy.”); *see also O2 Micro Int’l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008) (“[D]istrict courts are not (and should not be) required to construe every limitation present in a patent’s asserted claims.”).

The Court accordingly hereby construes **“attention”** to have its **plain meaning**.

**B. “sensing attention of a user”**

<b>Plaintiffs’ Proposed Construction</b>	<b>Defendants’ Proposed Construction</b>
“ <i>See</i> [Plaintiffs’] construction for ‘attention.’ No further construction necessary.”	Indefinite

(Dkt. No. 86, App’x B at 1.) The parties submit that this term appears in Claims 1, 4, 5, 8, and 20 of the ’665 Patent and Claims 1–3 of the ’660 Patent. (*Id.*)

Shortly before the start of the April 2, 2015 hearing, the Court provided the parties with the following preliminary construction: “Plain and Ordinary Meaning / Expressly reject Indefiniteness arguments.”

(1) The Parties’ Positions

Plaintiffs submit that the specification defines “user,” and “[g]iven that the patent discusses a mechanical process, a skilled artisan would have understood the term ‘sensing’ . . .

‘as in everyday parlance.’” (Dkt. No. 69 at 4) (quoting *3M Innovative Props. Co. v. Tredegar Corp.*, 725 F.3d 1315, 1333 (Fed. Cir. 2013)). Plaintiffs also submit that “the specifications describe automatic sensing of the user’s attention as the essence of the invention.” (*Id.* at 5.)

Defendants’ response brief and Plaintiffs’ reply brief address this term together with the term “attention,” which is addressed above. (*See* Dkt. No. 78 at 4–6); (*see also* Dkt. No. 81 at 4–5.)

## (2) Analysis

The specification discloses:

[A]n attentive user interface according to the invention applies such social rules to device-initiated interactions or communications, by assessing a user’s attentive state, and making a determination as to whether, when, and how to interrupt (e.g., notify) the user on the basis of the user’s attentive state.

’665 Patent at 5:4–9.

The specification expressly defines the term “user” to mean “the entity, preferably human, who is using a device.” ’665 Patent at 5:33–34. The parties do not appear to dispute the meaning of user. “Sensing,” likewise, appears to be used according to its meaning in common parlance and does not appear to be in dispute. Because the parties’ dispute as to the constituent term “attention” is addressed separately, above, no further construction is necessary.

The Court therefore hereby construes “**sensing attention of a user**” to have its **plain meaning**.

**C. “wherein the operation that is modulated is initiated by the device”**

<b>Plaintiffs’ Proposed Construction</b>	<b>Defendants’ Proposed Construction</b>
“ <i>See</i> [Plaintiffs’] constructions for ‘modulated’ and ‘operation of the device.’ No further construction necessary.”	Indefinite  Alternatively: “wherein the operation that is modulated is initiated by the device based on an information event and without explicit or implicit user input”

(Dkt. No. 86, App’x B at 1–2.) The parties submit that this term appears in Claim 1 of the ’665 Patent and Claim 1 of the ’660 Patent.

Shortly before the start of the April 2, 2015 hearing, the Court provided the parties with the following preliminary construction: “Plain and Ordinary Meaning / Expressly reject Defendants’ proposals of ‘information event’ and ‘without explicit or implicit user input.’”

**(1) The Parties’ Positions**

Plaintiffs argue that the meaning of this term is clear, and no further construction is necessary, in light of the agreed-upon and proposed constructions for constituent terms. (Dkt. No. 69 at 5.) Plaintiffs further argue that “[t]he claims’ language is not only more precise than the nebulous ‘information event’ language in the Defendants’ proposed construction, it employs the consistently used term ‘attention’ rather than interjecting the vague concept of ‘explicit or implicit user input.’” (*Id.* at 6.) Finally, Plaintiffs cite the prosecution history and conclude that “[t]he invention modulates the device’s operations based on the user’s attention toward the device, not on some broad notion of ‘information event’ and not on a lack of ‘explicit or implicit user input.’” (*Id.* at 6–7.)

Defendants respond that the patents-in-suit do not sufficiently distinguish between “user-initiated” control of a device and “device-initiated” control of a device. (Dkt. No. 78 at 7.)

Defendants also argue that although “Plaintiffs appear to propose defining ‘device initiated’ by negation” as “whatever ‘user initiated’ is not,” “‘user initiated’ is not clearly defined.” (*Id.* at 8.)

Alternatively, Defendants submit a proposed construction and cite Figure 3 and the accompanying description as support. (*Id.* at 10.) Defendants urge that “[t]he addition of the words ‘explicit or implicit’ in [Defendants’] construction ensures that the scope of the claim does not turn on the state of mind of the user.” (*Id.* at 11 n.4.) Defendants conclude that their proposed construction “articulates the only reasonable and supportable distinction between device-initiated and user-initiated devices.” (*Id.* at 13.)

Plaintiffs reply:

Skilled artisans would understand the patents’ clear dichotomy between user- and device-initiated operations. User-initiated operations are those initiated by “user invocation,” “user initiation,” “conscious user input,” “active user input,” or “explicit user input,” all of which are synonymous in this context. Device-initiated operations are those initiated by the device without direct instructions or commands from the user. In general, operations triggered by what the Defendants call “passive inputs” are device-initiated operations because the device carries out the operations without being instructed or commanded to do so by the user.

(Dkt. No. 81 at 6 (citing *id.*, Ex. A, Feb. 4, 2015 Balakrishnan Decl. at ¶ 27)). Plaintiffs also reiterate that the phrase “information event” proposed by Defendants would require additional construction, and “Defendants’ definition for ‘information event’—‘an event that is only known to the device and not the user,’ *see* Resp. Br. at 10—is entirely unsupported.” (Dkt. No. 81 at 7.) Finally, Plaintiffs argue that “Defendants’ definition would exclude such physical indices as ‘passive’ or ‘implied’ inputs.” (*Id.*)

## (2) Analysis

Claim 1 of the ’665 Patent, for example, recites (emphasis added):

1. A method of modulating operation of a device, comprising:  
disposing a hardware sensor in or on the device for sensing attention of a user specifically toward the device;

processing a signal from the hardware sensor and outputting to the device a measure or index of the user's attention toward the device; and  
modulating operation of the device on the basis of the measure or index of the user's attention toward the device;  
*wherein the operation that is modulated is initiated by the device* and provides a notification and/or information and/or communication to the user based on the user's attention toward the device.

The Background of the Invention states:

While it is evident that considerable effort has been directed to improving *user-initiated* communications, little work has been done to improve *device-initiated* interactions or communications.

'665 Patent at 1:64–67 (emphasis added). The specification then discloses:

An attentive user interface of the invention may be applied to user-initiated control of a device using, for example, eye contact and/or eye gaze direction, with or without further input, such as voice, body presence, and the like. However, the invention is particularly applicable to device-initiated communication with a user, such as, for example, notifying a user of an incoming message, or of a task requiring user input. As shown in FIG. 3, an attentive user interface, running on a [*sic*] such a device, senses and evaluates one or more indices of user attention (e.g., eye contact, eye movement, eye position, eye gaze direction, voice, body presence, body orientation, head and/or face orientation, activity, brain activity/arousal) to determine whether, when, and how to notify, interrupt, respond or respond [*sic*] to the user, open/close communication channels, an [*sic*, and] the like.

*Id.* at 9:25–39; *see also id.* at 1:9–12 (“[T]his invention relates to use of eye contact/gaze direction information by technological devices and appliances to more effectively communicate with users, in device or subject initiated communications.”); *id.* at Fig. 3 (including illustration of an “information event”).

The specification also explains that a device can make decisions about notifying a user based on information about a user's attentive state. *See* '665 Patent at 5:24–25 (“The PDA then can decide whether, when, and how to notify . . . .”); *see also id.* at 13:57–60 (“[I]nterruptiveness is reduced by the device making intelligent decisions about its notification method on the basis of obtained information about the user's attentive state.”); *id.* at 15:11–19 (“televisions and other

audiovisual content delivery systems can be augmented with eye contact sensors to determine whether that content is being viewed, and to take appropriate action when it is no longer viewed”); *id.* at 16:8–11 (“EyeREASON decides . . . the priority of a message originating from a subject in relationship to that of tasks the user is attending to.”).

During prosecution of the ’856 Patent, the patentee distinguished United States Patent No. 6,001,065 (referred to as “DeVito” or “De Vito”):

De Vito teaches sensing bioelectrical parameters of a user, and using the sensed bioelectrical parameters to control a system such as a video game, an interactive movie, or an appliance. In every system described in De Vito, outputting information is *initiated by the user*. That is, the system does not initiate outputting information itself, but requires input from a user through a sensed bioelectrical parameter of the user.

For example, at column 10, lines 5-13, De Vito teaches that control parameters obtained from sensed bioelectrical parameters (“epochs”) of a user are simply mapped to control codes of the system, and are used to control output of systems such as digital video, video games, movies, interactive environments, virtual environments, alarm systems. Thus, the user initiates outputting of information by the system by accessing pre-defined codes of the system through his/her sensed bioelectrical parameters.

As another example, at column 12, lines 4-28, De Vito teaches a simple three button game system, wherein detected bioelectrical events are mapped to a game controller. Here, a relaxed forehead state may be mapped to represent “no buttons pressed”, a raised forehead may be mapped to “button A depressed”, a lowered forehead may be mapped to “button B depressed”, and a transition between raised and lowered forehead may be mapped to “button C depressed”. De Vito teaches that one-byte digital control 20 [*sic*] codes representing the detected events are transmitted to an interface 60 electrically connected in parallel to the buttons of game controller 71. In response to the control codes, a microcontroller 62 effects the opening and closing of respective game-controller-button circuits. In this way, the user initiates outputting of information by the video game 70 through the above-mentioned forehead states.

As another example, at column 12, lines 30-44, De Vito describes a control system that is a substitute for a computer mouse, using sensed bioelectric events mapped to a pointer which moves from option to option on a display. The option being pointed at is highlighted on the display. A command appropriate for selecting the pointed option is sent to the computer operating system when the selection is confirmed. The bioelectric event may be, for example, a quick eye



movement to the left or right, wherein such an event occurring immediately after the pointer stabilizes on an object is used to confirm the object selection. Thus, the user initiates outputting of information on the display through his/her sensed bioelectrical parameters.

These examples clearly establish that De Vito is based entirely on systems wherein an outputting of information is effected in response to user input. That is, De Vito provides systems wherein outputting information is *initiated by the user*.

In contrast to De Vito, current claim 45<sup>3</sup> recites a method wherein outputting information is *initiated by the device*.

(Dkt. No. 78, Ex. 3, Sept. 21, 2012 Amendment & Reply to Office Action at 7–8 (QUEENS-SAMSUNG-0007161) (pp. 8–9 of 20 of Ex. 3)) (emphasis added); (*see id.* at 6) (recounting examiner’s statement that “Pepper Jr. discloses all of the claimed features except for the outputting information including the device soliciting user input, or being initiated by the device”).

At the April 2, 2015 hearing, Defendants argued that, in distinguishing DeVito, the patentee distinguished active *and passive* user inputs. Defendants further stated that “passive” input refers to action by a user even if that action is not intended to be a command. Plaintiffs responded that what the patentee distinguished in DeVito were explicit, non-natural gestures that were mapped to particular device controls, such as particular buttons. Plaintiff also submitted that, throughout the prosecution history, the examiner had no difficulty understanding the scope of the phrase “initiated by the device.”

On balance, the patentee’s statements during prosecution constitute a disclaimer of direct user input, that is, input by a user independent of any detected state of user attention. *See Typhoon Touch Techs., Inc. v. Dell, Inc.*, 659 F.3d 1376, 1381 (Fed. Cir. 2011) (“The patentee is

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<sup>3</sup> Application claim 45, as amended by the patentee in this same prosecution history document, is identical to issued Claim 1 of the ’856 Patent.

bound by representations made and actions that were taken in order to obtain the patent.”); *see also Southwall Tech., Inc. v. Cardinal IG Co.*, 54 F.3d 1570, 1576 (Fed. Cir. 1995) (“Claims may not be construed one way in order to obtain their allowance and in a different way against accused infringers.”). In other words, action “initiated by the user,” which the patentee disclaimed, calls for some overt, purposeful action by a user that can be readily recognized by a device as a command, such as pressing a button (regardless of the actual state of mind of the user, for example, regardless of whether the user pressed the button intentionally or accidentally).

The phrase “initiated by the device,” in turn, does not necessarily exclude initiation based on sensing attention of a user. This finding is reinforced by, for example, Claim 1 of the ’856 Patent (quoted below as to the terms “controlling operation of the device” and “user state signal”), that recites outputting of information is initiated by the device *based on a user state signal*.

Further, the patentee did not make any definitive statements disclaiming “explicit or implicit user input” or definitively stating that an “information event” is required. *See Omega Eng’g v. Raytek Corp.*, 334 F.3d 1314, 1324 (Fed. Cir. 2003) (“As a basic principle of claim interpretation, prosecution disclaimer promotes the public notice function of the intrinsic evidence and protects the public’s reliance on *definitive* statements made during prosecution.”) (emphasis added); *see also id.* at 1325–26 (“[F]or prosecution disclaimer to attach, our precedent requires that the alleged disavowing actions or statements made during prosecution be both *clear and unmistakable*.”) (emphasis added).

As to extrinsic evidence, Plaintiffs’ expert opines:

Prof. Betke [Defendants’ expert] asserts that “‘initiated by the device’ means initiated ‘without user input’” and that “if the operation is initiated by the device,

it cannot be initiated based on measure or index of the user's attention" (Betke Decl. at ¶69). This assertion is simply not supported. One of skill in the art reading the patent would understand that "initiated by the device" does not preclude information about or from the user being used as part of the process of initiation. Rather, what is precluded are user actions that are explicit or consciously intended to be construed as a controlling initiating action. In this sense "user initiated" would be understood to mean "user invocation," "user initiation," "conscious user input," "active user input," or "explicit user input," all of which are essentially synonymous within this context. One of skill in the art would understand that what the defendant refers to as "passive user inputs" that might trigger a device-initiated operation are inputs that are not used to directly initiate an action unlike, for example, a user intentionally pressing a button to trigger an operation.

(Dkt. No. 81, Ex. A, Feb. 4, 2015 Balakrishnan Decl. at ¶ 27); (*see id.* at ¶ 29.)

Defendants submit the opinion of their expert that the disclosure does not provide sufficient guidance to distinguish "device-initiated" operations from "user-initiated" operations. (*See* Dkt. No. 78, Ex. 1, Jan. 28, 2015 Betke Decl. at ¶¶ 38–42.) Defendants urge that device-initiated operations must be based on an information event, which is known only to the device and not to the user. (*Id.* at ¶ 58.) To support their proposal of requiring an "information event," Defendants cite Figure 3 of the patents-in-suit.

Although the specification discloses an "information event," "patent coverage is not necessarily limited to inventions that look like the ones in the figures." *MBO Labs. Inc. v. Becton, Dickinson & Co.*, 474 F.3d 1323, 1333 (Fed. Cir. 2007). Further, the prosecution history disclaimer did *not* confine the meaning of "initiated by the device" so as to exclude any user involvement, as discussed above.

In sum, in light of the foregoing, the scope of the disputed term is sufficiently clear. Defendants' indefiniteness argument is therefore hereby expressly rejected. The Court likewise hereby expressly rejects Defendants' alternative proposed construction.

No further construction is necessary. *See U.S. Surgical*, 103 F.3d at 1568; *see also O2 Micro*, 521 F.3d at 1362; *Finjan, Inc. v. Secure Computing Corp.*, 626 F.3d 1197, 1207 (Fed. Cir. 2010) (“Unlike *O2 Micro*, where the court failed to resolve the parties’ quarrel, the district court rejected Defendants’ construction.”).

Instead, the parties’ briefing and their oral arguments at the April 2, 2015 hearing have demonstrated that the parties’ dispute boils down to the application of commonly understood words to particular fact situations. Such questions of fact are for the finder of fact rather than for the Court as part of claim construction. *See PPG Indus. v. Guardian Indus. Corp.*, 156 F.3d 1351, 1355 (Fed. Cir. 1998) (“[A]fter the court has defined the claim with whatever specificity and precision is warranted by the language of the claim and the evidence bearing on the proper construction, the task of determining whether the construed claim reads on the accused product is for the finder of fact.”).

The Court therefore hereby construes **“wherein the operation that is modulated is initiated by the device”** to have its **plain meaning**.

**D. “wherein the outputting information is initiated by the device”**

<b>Plaintiffs’ Proposed Construction</b>	<b>Defendants’ Proposed Construction</b>
No construction necessary.	Indefinite  Alternatively: “wherein the outputting information is initiated by the device based on an information event and without explicit or implicit user input”

(Dkt. No. 86, App’x B at 1–2.) The parties submit that this term appears in Claim 1 of the ’856 Patent and Claim 1 of the ’482 Patent. (*Id.*)

Shortly before the start of the April 2, 2015 hearing, the Court provided the parties with the following preliminary construction: “Plain and Ordinary Meaning / Expressly reject Defendants’ proposals of ‘information event’ and ‘without explicit or implicit user input.’”

(1) The Parties’ Positions

Plaintiffs argue: “Three variations of the word ‘output’ within the implicated claims make the meaning of the phrase ‘outputting information’ clear in context. Similarly, the description of the invention illuminates the meaning of the phrase ‘initiated by the device.’” (Dkt. No. 69 at 7.) Plaintiffs also urge that “[t]he primary purpose of the patents—and the essence of their improvement on the prior art—was to enhance device-initiated communications. . . . Skilled artisans would have understood the disputed term to refer to device-initiated communications as opposed to user- or human-initiated communications.” (*Id.* at 8.) Finally, Plaintiffs argue that “[t]he phrase ‘based on an information event’ adds nothing that the claims do not already convey, and the phrase ‘without explicit or implicit user input’ conflicts with the detection of user attention at the core of the patents.” (*Id.*)

Defendants’ response brief and Plaintiffs’ reply brief address this term together with the term “wherein the operation that is modulated is initiated by the device,” which is addressed above. (*See* Dkt. No. 78 at 7–13); (*see also* Dkt. No. 81 at 6–7.)

(2) Analysis

For the same reasons discussed as to the term “wherein the operation that is modulated is initiated by the device,” above, the Court hereby expressly rejects Defendants’ indefiniteness argument and Defendants’ proposed construction, and no further construction is required.

The Court therefore hereby construes **“wherein the outputting information is initiated by the device”** to have its **plain meaning**.

**E. “operation of the device”**

<b>Plaintiffs’ Proposed Construction</b>	<b>Defendants’ Proposed Construction</b>
“actions of a computer program on the device”	“ <i>See</i> [Defendants’] constructions for ‘modulating operation of the device,’ ‘wherein operation of the device is modulated,’ and ‘controlling operation of the device’”

(Dkt. No. 86, App’x B at 2.) The parties submit that this term appears in Claim 1 of the ’665 Patent, Claim 1 of the ’660 Patent, Claim 1 of the ’856 Patent, and Claims 1, 31, and 32 of the ’482 Patent. (*Id.*)

Shortly before the start of the April 2, 2015 hearing, the Court provided the parties with the following preliminary construction: “Plain and Ordinary Meaning.” At the April 2, 2015 hearing, the parties agreed to the Court’s preliminary construction.

The Court therefore hereby construes **“operation of the device”** to have its **plain meaning**.

**F. “modulating operation of the device” and “wherein operation of the device is modulated”**

<b>Plaintiffs’ Proposed Construction</b>	<b>Defendants’ Proposed Construction</b>
“ <i>See</i> [Plaintiffs’] constructions for ‘modulating/modulated’ and ‘operation of the device.’ No further construction necessary.”	“modulating an initiated operation of the device” / “wherein an initiated operation of the device is modulated”

(Dkt. No. 86, App’x B at 2.) The parties submit that these terms appear in Claim 1 of the ’665 Patent and Claim 1 of the ’660 Patent. (*Id.*)

Shortly before the start of the April 2, 2015 hearing, the Court provided the parties with the following preliminary construction: “Plain and Ordinary Meaning / Expressly reject requirement of any order of the method steps.”

### (1) The Parties' Positions

Plaintiffs argue that these disputed terms require no construction apart from the agreed construction for “modulated / modulating” and Plaintiffs’ proposed construction for “operation of the device.” (Dkt. No. 69 at 11.)

Defendants respond: “The key dispute with respect to these terms is whether ‘modulate’ means the same thing as ‘initiate.’ They do not, and the language of the claims makes this clear.” (Dkt. No. 78 at 14.) Defendants argue that they “merely seek[] to clarify that an initiated operation of the device is modulated.” (*Id.* at 15.)

Plaintiffs reply: “[Plaintiffs] agree[] the terms are different. But the Defendants’ point cuts against their construction: that the terms have different meanings is a reason not to append ‘initiated’ wherever ‘modulated’ appears.” (Dkt. No. 81 at 8.) “Finally,” Plaintiffs argue, “the reason is self-evident why the addition of the word ‘initiated,’ if it would limit the invention’s application to operations that are already in progress, contradicts the claim provision regarding operations ‘initiated by the device.’ The reason is that operations that are in progress have already been initiated.” (*Id.*)

### (2) Analysis

As background, Defendants submit that the specification states that an object of the invention was to make intrusive device-initiated communications conform to basic social rules for requesting and negotiating attention. *See* ’665 Patent at 4:53–66; *see also id.* at 5:4–9 (“[A]n attentive user interface according to the invention applies such social rules to device-initiated interactions or communications, by assessing a user’s attentive state, and making a determination as to whether, when, and how to interrupt (e.g., notify) the user on the basis of the user’s attentive state.”).

Also of note, the parties have agreed that the term “modulating” means “controlling, enabling and/or disabling, adjusting, or routing.” (Dkt. No. 61 at 1); (Dkt. No. 86 at App’x B at 3.)

Claim 1 of the ’665 Patent recites (emphasis added):

1. A method of modulating operation of a device, comprising:  
    disposing a hardware sensor in or on the device for sensing attention of a user specifically toward the device;  
    processing a signal from the hardware sensor and outputting to the device a measure or index of the user’s attention toward the device; and  
    *modulating operation of the device* on the basis of the measure or index of the user’s attention toward the device;  
    *wherein the operation that is modulated is initiated by the device* and provides a notification and/or information and/or communication to the user based on the user’s attention toward the device.

Claim 1 of the ’660 Patent recites (emphasis added):

1. Apparatus for communication between a user and a device, comprising:  
    a hardware sensor in or on the device that senses attention of the user specifically toward the device; and  
    a processor that processes a signal from the hardware sensor and outputs to the device a measure or index of the user’s attention toward the device; and  
    *wherein operation of the device is modulated* on the basis of the measure or index of the user’s attention toward the device;  
    *wherein the operation that is modulated is initiated by the device* and provides a notification and/or information and/or communication to the user based on the user’s attention toward the device.

In general, “we must presume that the use of . . . different terms in the claims connotes different meanings.” *CAE Screenplates, Inc. v. Heinrich Fiedler GmbH & Co. KG*, 224 F.3d 1308, 1317 (Fed. Cir. 2000); *accord Primos, Inc. v. Hunter’s Specialties, Inc.*, 451 F.3d 841, 848 (Fed. Cir. 2006) (“[T]he terms ‘engaging’ and ‘sealing’ are both expressly recited in the claim and therefore ‘engaging’ cannot mean the same thing as ‘sealing’; if it did, one of the terms would be superfluous.”); *Chi. Bd. Options Exch., Inc. v. Int’l Sec. Exch., LLC*, 677 F.3d 1361, 1369 (Fed. Cir. 2012) (noting “[t]he general presumption that different terms have different



meanings”). Indeed, the parties here substantially agree that “modulated” and “initiated” have different meanings.

Defendants have argued, however, that an operation must be initiated before it can be modulated. Specifically, Defendants’ expert has opined: “In my opinion, [Defendants’] insertion of the phrase ‘an initiated’ in the context of the larger phrase ‘modulating operation of the device’ merely clarifies that the ‘modulat[ed] operation’ has already been ‘initiated by the device.’” (Dkt. No. 78, Ex. 1, Jan. 28, 2015 Betke Decl. at ¶ 66.)

Defendants’ proposal of any such ordering of steps is hereby expressly rejected as unsupported. *See, e.g., Baldwin Graphic Sys., Inc. v. Siebert, Inc.*, 512 F.3d 1338, 1345 (Fed. Cir. 2008) (“As a general rule the claim is not limited to performance of the steps in the order recited, unless the claim explicitly or implicitly requires a specific order.”) (citing *Interactive Gift Express, Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1342–43 (Fed. Cir. 2001)).

That is, nothing in the claim precludes altering the manner in which a later-initiated operation will operate. This also comports with the parties’ agreement that “modulating” includes “adjusting.” (Dkt. No. 61 at 1); (Dkt. No. 86 at App’x B at 3.)

Defendants’ proposed constructions are, therefore, hereby expressly rejected, and no further construction is necessary. *See U.S. Surgical*, 103 F.3d at 1568; *see also O2 Micro*, 521 F.3d at 1362; *Finjan*, 626 F.3d at 1207.

The Court accordingly hereby construes **“modulating operation of the device”** and **“wherein operation of the device is modulated”** to have their **plain meaning**.

**G. “controlling operation of the device”**

<b>Plaintiffs’ Proposed Construction</b>	<b>Defendants’ Proposed Construction</b>
“ <i>See</i> construction for ‘operation of the device.’ No further construction necessary.”	“controlling an initiated operation of the device”

(Dkt. No. 86, App’x B at 2.) The parties submit that this term appears in Claim 1 of the ’856 Patent and Claim 1 of the ’482 Patent. (*Id.*)

Shortly before the start of the April 2, 2015 hearing, the Court provided the parties with the following preliminary construction: “Plain and Ordinary Meaning.”

(1) The Parties’ Positions

Plaintiffs argue that Defendants’ proposal of “controlling” as part of Defendants’ proposed construction confirms that the disputed term requires no construction apart from “operation of the device,” which is a term addressed above. (Dkt. No. 69 at 12.) Plaintiffs also submit that “[i]n its ordinary sense, ‘controlling’ means much the same as the term ‘modulating,’ a term that the parties have agreed means “controlling, enabling and/or disabling, adjusting, or routing.” (*Id.*)

Defendants’ response brief and Plaintiffs’ reply brief address this term together with the terms “modulating operation of the device” and “wherein operation of the device is modulated,” which are addressed above. (*See* Dkt. No. 78 at 14–16); (*see also* Dkt. No. 81 at 8.)

(2) Analysis

Claim 1 of the ’856 Patent recites (emphasis added):

1. A method of controlling operation of a device, comprising:
  - using at least one sensor coupled to the device to output a sensor signal;
  - processing the sensor signal to produce a user state signal that is indicative of user attention toward a screen of the device; and
  - using the user state signal as a basis for *controlling operation of the device*;

*wherein the controlling operation includes determining whether to output information to the user;*

*wherein the information is visual information, audible information, or visual and audible information; and*

*wherein the outputting information is initiated by the device.*

Claim 1 of the '482 Patent recites (emphasis added):

1. An apparatus for controlling operation of a device, comprising:  
at least one sensor coupled to the device that outputs a sensor signal;  
a processor that processes the sensor signal and produces a user state signal that is indicative of user attention toward a screen of the device;  
*wherein the apparatus uses the user state signal as a basis for controlling operation of the device, the controlling operation including determining whether to output information to the user;*  
wherein the information is visual information, audible information, or visual and audible information; and  
*wherein the outputting of information is initiated by the device.*

For the same reasons set forth above regarding the “modulating . . .” terms, the Court rejects Defendants’ proposal of an order of steps, and no further construction is required.

The Court accordingly hereby construes “**controlling operation of the device**” to have its **plain meaning**.

#### H. “user state signal”

Plaintiffs’ Proposed Construction	Defendants’ Proposed Construction
No construction necessary.  Alternatively: “information about a user’s attentive state”	Indefinite

(Dkt. No. 86, App’x B at 2.) The parties submit that this term appears in Claims 1, 4, 7, 10, and 13 of the '856 Patent and Claims 1, 4, 10, and 13 of the '482 Patent. (*Id.*)

Shortly before the start of the April 2, 2015 hearing, the Court provided the parties with the following preliminary construction: “Plain and Ordinary Meaning / Expressly reject Indefiniteness arguments.”

### (1) The Parties' Positions

Plaintiffs argue that the meaning of this disputed term is clear in light of the context of the claims, the examples disclosed in the specification, and the common understanding of the constituent terms “user,” “state,” and “signal.” (*See* Dkt. No. 69 at 12–14.)

Defendants respond that “[t]his is not a term of art, and it does not have a plain and ordinary meaning.” (Dkt. No. 78 at 16.) Defendants argue that “[t]he term, as used in the claims, is tied to ‘attention,’” and “because the term ‘attention’ is indefinite, ‘user state signal’ is also indefinite.” (*Id.*)

Plaintiffs reply that Defendants’ arguments are undermined by their other positions, such as that “attentive state” is reasonably understandable. (Dkt. No. 81 at 8–9.)

### (2) Analysis

Claim 1 of the ‘856 Patent, for example, recites (emphasis added):

1. A method of controlling operation of a device, comprising:
  - using at least one sensor coupled to the device to output a sensor signal;
  - processing the sensor signal to produce a *user state signal* that is indicative of user attention toward a screen of the device; and
  - using the *user state signal* as a basis for controlling operation of the device;
- wherein the controlling operation includes determining whether to output information to the user;
- wherein the information is visual information, audible information, or visual and audible information; and
- wherein the outputting information is initiated by the device.

On balance, the surrounding claim language provides sufficient context for a person of ordinary skill in the art to understand the term “user state signal” with reasonable certainty. In particular, the claim itself recites that the signal at issue “is indicative of user attention toward a screen of the device.” Also, the phrase “user state” serves as a label to provide antecedent basis

for the limitation of “using the user state signal as a basis for controlling operation of the device.”<sup>4</sup>

As for the prosecution history, during prosecution of the ’856 Patent, the examiner rejected a claim containing the term “user state signal” as anticipated by U.S. Patent No. 4,302,011 (“Pepper, Jr.”), which disclosed a touchscreen. In rejecting the claim, the examiner compared the claimed invention’s user state signal to a Pepper, Jr. diagram:

Pepper, Jr. discloses controlling the operation of a gaming device. Unit 10 provides a sensor which is coupled to the device to output a sensor signal sensed by a user’s finger. Game circuitry 20 processes the sensor signal to produce a *user state signal* . . . which is indicative of user attention toward a screen (television set 25) of the device by movement which corresponds in all directions to the movement of a user’s finger. Based on a user’s attention to where the user’s [sic] wishes to position element 32, the user will correspondingly move a finger on surface 13 to provide the *user state signal* which serves as a basis for controlling operation of the gaming device.

(Dkt. No. 78, Ex. 3, Aug. 21, 2012 Office Action at 2 (QUEENS-SAMSUNG-0007169) (p. 17 of 20 of Ex. 3)) (emphasis added).

The patentee evidently overcame the Pepper, Jr. reference during prosecution, but the examiner’s discussion of a “user state signal” weighs further in favor of finding that a person of ordinary skill would understand that term with reasonable certainty. *See Am. Hoist & Derrick Co. v. Sowa & Sons, Inc.*, 725 F.2d 1350, 1359 (Fed. Cir. 1984) (patent examiners are “assumed . . . to be familiar from their work with the level of skill in the art”), *abrogated on other grounds*, *Therasense, Inc. v. Becton, Dickinson & Co.*, 649 F.3d 1276 (Fed. Cir. 2011); *see also*

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<sup>4</sup> The specification discloses, for example, an embodiment in which a device may play a video when the device senses eye contact with a user and, likewise, may pause a video when the device senses lack of eye contact. *See* ’665 Patent at 15:11–19. The parties have submitted competing expert opinions regarding such disclosures. (*See* Dkt. No. 78, Ex. 1, Jan. 28, 2015 Betke Decl. at ¶¶ 49–54); (Dkt. No. 81, Ex. A, Feb. 4, 2015 Balakrishnan Decl. at ¶ 30.) Ultimately these competing interpretations of the specification do not significantly affect the Court’s analysis.

*PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1304 (Fed. Cir. 2008) (citing *American Hoist*); *Salazar v. Procter & Gamble Co.*, 414 F.3d 1342, 1347 (Fed. Cir. 2005) (“Statements about a claim term made by an Examiner during prosecution of an application may be evidence of how one of skill in the art understood the term at the time the application was filed.”).

The Court therefore hereby expressly rejects Defendants’ indefiniteness argument. No further construction is necessary. *See U.S. Surgical*, 103 F.3d at 1568; *see also O2 Micro*, 521 F.3d at 1362.

The Court accordingly hereby construes “**user state signal**” to have its **plain meaning**.

**I. “processing the sensor signal to produce a user state signal that is indicative of user attention toward a screen of the device”**

<b>Plaintiffs’ Proposed Construction</b>	<b>Defendants’ Proposed Construction</b>
“ <i>See</i> construction for ‘attention’ and alternative construction for ‘user state signal.’ No further construction necessary.”	Indefinite

(Dkt. No. 86, App’x B at 2.) The parties submit that this term appears in Claim 1 of the ’856 Patent and Claim 1 of the ’482 Patent. (*Id.*)

Shortly before the start of the April 2, 2015 hearing, the Court provided the parties with the following preliminary construction: “Plain and Ordinary Meaning / Expressly reject Indefiniteness arguments.”

**(1) The Parties’ Positions**

Plaintiffs argue that no construction is required apart from construction of “attention” and “user state signal,” which are addressed separately above. (Dkt. No. 69 at 15.)

Defendants argue this term together with the term “user state signal,” which is addressed above. (*See* Dkt. No. 78 at 16–17.)

Likewise, Plaintiffs’ reply brief presents no argument on this term other than as to the constituent term “user state signal.” (*See* Dkt. No. 81 at 8–9.)

(2) Analysis

No construction is necessary apart from construction of the constituent terms “attention” and “user state signal,” which are addressed above.

The Court therefore hereby construes **“processing the sensor signal to produce a user state signal that is indicative of user attention toward a screen of the device”** to have its **plain meaning**.

**J. “measure or index”**

<b>Plaintiffs’ Proposed Construction</b>	<b>Defendants’ Proposed Construction</b>
No construction necessary.  Alternatively: “a value that identifies a quantity”	“a value that identifies a quantity based on sensed eye contact, or eye movement, or eye position, or eye gaze direction, or voice, or body presence, or body orientation, or head and/or face orientation, activity, and/or brain activity/arousal”

(Dkt. No. 61, Ex A at 16.) The parties submit that this term appears in Claim 1 of the ’665 Patent and Claim 1 of the ’660 Patent. (*Id.*)

The parties have reached an agreed-upon construction for this term, as reflected in Defendants’ response brief (Dkt. No. 78 at 19) and in the parties’ February 11, 2015 Joint Claim Construction Chart (Dkt. No. 86, App’x B at 3). That agreed-upon construction is set forth in Appendix A to this Claim Construction Memorandum and Order.

**K. “notify” and “notification”**

<b>Plaintiffs’ Proposed Construction</b>	<b>Defendants’ Proposed Construction</b>
No construction needed.  Alternatively: “signaling or soliciting for a user’s attention”	“signaling or soliciting the user for consideration of an information event”

(Dkt. No. 86, App’x B at 3.) The parties submit that these terms appear in Claims 1 and 16 of the ’665 Patent and Claim 1 of the ’660 Patent. (*Id.*)

Shortly before the start of the April 2, 2015 hearing, the Court provided the parties with the following preliminary construction: “signal[ing] or solicit[ing] for a user’s attention.”

(1) The Parties’ Positions

Plaintiffs argue that the specification expressly defines these disputed terms. (Dkt. No. 69 at 17.) Plaintiffs also argue that “Defendants’ construction interjects a new nebulous term—‘information event’—that is foreign to the patents, appearing not once in any of the claims,” and that would require additional construction. (*Id.* at 18.) Further, Plaintiffs argue Defendants’ proposal would exclude preferred embodiments and is therefore disfavored. (*Id.* at 18–19.) Plaintiffs emphasize that in some embodiments, “[t]he event that triggers that notification . . . is not the subject of the notification itself.” (*Id.* at 18.)

Defendants respond that their proposal of “for consideration of an information event” is supported by the specification. (Dkt. No. 78 at 18.) Defendants argue that their proposal does not read out a preferred embodiment because “[t]he examples to which [Plaintiffs] point . . . are arguably user-initiated embodiments or ones which require user-initiated interaction,” as opposed to “device-initiated” operations. (*Id.*)



Plaintiffs reply that “Defendants dismiss preferred embodiments that do not match their construction by assuming that the claims do not read on these embodiments. That fallacy turns the rule against excluding preferred embodiments on its head.” (Dkt. No. 81 at 9.) Plaintiffs argue that “[g]iven that the claims state no limitation respecting the user’s knowledge of triggering events and that the user knows about the triggering events in preferred embodiments, the better reading is that the claims do not include the Defendants’ baseless ‘information event’ limitation.” (*Id.* at 10.)

## (2) Analysis

“[T]he specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess. In such cases, the inventor’s lexicography governs.” *Phillips*, 415 F.3d at 1316.

Here, the specification expressly defines “notify” and “notification” as follows:

As used herein, the term “notify” or “notification” is intended to mean the signalling or soliciting, usually by a device, for a user’s attention. For example, notification can employ any cue(s) that act on a user’s senses to solicit the user’s attention, such as one or more of audio, visual, tactile, and olfactory cues.

’665 Patent at 6:9–14. Plaintiffs urge that the phrase “usually by a device” is an “elaborative phrase” that should be omitted. (Dkt. No. 69 at 17.)

The specification also uses the word “notify” as an example of “to interrupt”:

[A]n attentive user interface according to the invention applies such social rules to device-initiated interactions or communications, by assessing a user’s attentive state, and making a determination as to whether, when, and how to *interrupt* (e.g., *notify*) the user on the basis of the user’s attentive state.

’665 Patent at 5:4–9 (emphasis added); *see id.* at 2:37–43 (“notifying said user progressively”; “said notification is of at least one type selected from the group consisting of audio, visual, and tactile”).

Also of note, some embodiments disclose that when a user directs attention to a device, the notification may be a preset message, such as information about the contents of a refrigerator. *See* '665 Patent at 19:49–59; *see also id.* at 16:59–61. In such embodiments, the event that triggers the notification is not necessarily the subject of the notification itself. On one hand, “[i]t is not necessary that each claim read on every embodiment.” *Baran v. Med. Device Techs., Inc.*, 616 F.3d 1309, 1316 (Fed. Cir. 2010). On the other hand, excluding preferred embodiments is disfavored. *See Vitronics*, 90 F.3d at 1582–83 (noting that a claim interpretation in which the only embodiment or a preferred embodiment “would not fall within the scope of the patent claim . . . is rarely, if ever, correct and would require highly persuasive evidentiary support”); *see also Accent Packaging, Inc. v. Leggett & Platt, Inc.*, 707 F.3d 1318, 1326 (Fed. Cir. 2013).

Defendants rely primarily upon Figure 3, which illustrates an “information event,” an example of which appears to be an “incoming message” discussed in the accompanying written description. *See* '665 Patent at 9:25–50. Defendants’ expert opines:

In addition, Figure 3 is used to illustrate how the device-initiated communications may be modulated. '665 patent, at 9:32-51. In my opinion, Figure 3 makes clear that the notification solicits the user to consider an information event. Moreover, in context of the surrounding specification, one of ordinary skill would understand that the information event is the basis for the device-initiated communication, such as the incoming email message or the task requiring user input.

(Dkt. No. 78, Ex. 1, Jan. 28, 2015 Betke Decl. at ¶ 58.)

On balance, however, the requirement of an “information event” should not be imported from Figure 3. *See MBO Labs.*, 474 F.3d at 1333 (“[P]atent coverage is not necessarily limited to inventions that look like the ones in the figures. To hold otherwise would be to import limitations [i]nto the claim[s] from the specification, which is fraught with danger.”); *see also Comark*, 156 F.3d at 1187; *Phillips*, 415 F.3d at 1323 (“[A]lthough the specification often describes very

specific embodiments of the invention, we have repeatedly warned against confining claims to those embodiments.”).

The Court therefore hereby expressly rejects Defendants’ proposal of requiring an “information event.” As set forth above, the parties are otherwise in substantial agreement that “notifying” refers to “signaling or soliciting” a user, as set forth in the specification. ’665 Patent at 6:9–14.

The Court according hereby construes **“notify”** and **“notification”** to mean **“signaling or soliciting for a user’s attention.”**

**L. “wherein sensing attention comprises sensing one or more indices selected from the group consisting of . . . user activity”**

<b>Plaintiffs’ Proposed Construction</b>	<b>Defendants’ Proposed Construction</b>
“ <i>See</i> [Plaintiffs’] constructions for ‘attention’ and ‘measure or index.’ No further construction necessary.”	Indefinite

(Dkt. No. 186, App’x B at 1.) The parties submit that this term appears in Claims 4 and 20 of the ’665 Patent and Claims 2 and 3 of the ’660 Patent. (*Id.*)

Shortly before the start of the April 2, 2015 hearing, the Court provided the parties with the following preliminary construction: “Plain and Ordinary Meaning / Expressly reject Indefiniteness arguments.”

(1) The Parties’ Positions

Plaintiffs argue that the disputed term “requires no further construction beyond application of the proper constructions for the terms ‘attention,’ ‘sensing attention of a user,’ and ‘measure or index.’” (Dkt. No. 69 at 19.) “Applying those constructions,” Plaintiffs submit, “the resulting meaning is: ‘wherein sensing engagement with or toward a subject (i.e., attention)

comprises sensing one or more values that identify a quantity (i.e., indices) selected from the group consisting of . . . user activity.” (*Id.* at 19–20.)

Defendants’ response brief and Plaintiffs’ reply brief address this term together with the term “attention,” which is addressed above. (*See* Dkt. No. 78 at 4–6); (*see also* Dkt. No. 81 at 4–5.)

## (2) Analysis

Claim 4 of the ’665 Patent, for example, recites (emphasis added):

4. The method of claim 1, *wherein sensing attention comprises sensing one or more indices selected from the group consisting of eye contact, eye movement, eye position, eye gaze direction, voice, body presence, body orientation, head and/or face orientation, user activity, and brain activity/arousal.*

The parties do not appear to dispute the meaning of user “activity,” which the specification refers to as being measurable actions:

As used herein, the term “attentive state” is intended to mean a *measure or index* of a user’s engagement with or attention toward a subject. Examples of such indices are eye contact, eye movement, eye position, eye gaze direction, voice, body presence, body orientation, head and/or face orientation, *activity*, and brain activity/arousal.

’665 Patent at 6:3–8 (emphasis added).

The specification provides additional context for understanding “user activity” in the discussion of particular embodiments. *See id.* at 9:42–45 (“[A]n attentive user interface might progressively signal for the user’s attention. Initially this may happen through a channel that is peripheral to the user’s current activity.”); *see also id.* at 11:25–27 (“A device remains in the periphery of user activity until the user has acknowledged the device’s request for attention.”); *id.* at 16:45–46 (“Alex enters his living room, which senses his presence . . . .”); *id.* at 16:56–58 (“As he enters the kitchen, his interruption levels are adjusted appropriate to his interactions with devices in the kitchen.”).

Because “user activity” is readily understandable in the context of the claims and the specification, and because the constituent term “attention” is addressed separately, above, no further construction is required.

The Court accordingly hereby construes **“wherein sensing attention comprises sensing one or more indices selected from the group consisting of . . . user activity”** to have its **plain meaning**.

### CONCLUSION

The Court adopts the constructions set forth in this opinion for the disputed terms of the patents-in-suit.

The parties are ordered that they may not refer, directly or indirectly, to each other’s claim construction positions in the presence of the jury. Likewise, the parties are ordered to refrain from mentioning any portion of this opinion, other than the actual definitions adopted by the Court, in the presence of the jury. Any reference to claim construction proceedings is limited to informing the jury of the definitions adopted by the Court.

**SIGNED this 13th day of May, 2015.**

  
ROY S. PAYNE  
UNITED STATES MAGISTRATE JUDGE

## APPENDIX A

<u>Term</u>	<u>Parties' Agreement</u>
“modulating” and “modulated”  (’665 Patent, Claims 1, 16; ’660 Patent, Claim 1)	“controlling, enabling and/or disabling, adjusting, or routing”
“measure or index”  (’665 Patent, Claim 1; ’660 Patent, Claim 1)	“a value that identifies a quantity”

(Dkt. No. 61 at 1; Dkt. No. 86 at App’x B at 3.)